

3/12/91

DATA EVALUATION REVIEW

MRID No. 00043263

1. Chemical: Permethrin
2. Test Material: FMC 33297 → 95.7% a.i. (27 (COW))
3. Study Type: 96-hour Static Acute Toxicity to Bluegill Sunfish
4. Study ID: Acute Toxicity of FMC 33297 to Bluegill Sunfish (Lepomis macrochirus). Performing Laboratory: E G and G, Bionomics Aquatic Toxicology Laboratory 790 Main Street Wareham, Massachusetts; Date of test: Dec. 1979; Manufacturer: ICI Americas Inc. Agricultural Products Wilmington, Delaware 19897: ID No: BW-79-12-582.

5. Reviewed by:

Daniel Balluff, Wildlife Biologist
Ecological Fate and Effects Division
Ecological Effects Branch (H7507C)

Daniel Balluff
3-5-91

6. Approved by:

Henry Craven, Head section IV
Ecological Fate and Effects Division
Ecological Effects Branch (H7507C)

Henry T. Craven
3/12/91

7. Conclusion:

This study appears to be scientifically sound but does not fulfill guideline requirements for acute toxicity to bluegill sunfish because the test solutions were reported to be cloudy in most of the test concentrations for much of the test period and no explanation for this was provided. Nominal test concentrations were not confirmed and the test material was not adequately identified. However, the 96-hour LC50 for FMC 33297 was 6.8 ppb. The no mortality level was found to be 4.6 ppb.

8. Recommendations: N/A

9. Background: N/A

10. Discussion of Individual Tests: N/A

11. Materials and Methods:

a. Test Animals - Bluegill Sunfish (Lepomis macrochirus)
Mean length: 43 mm; Mean weight: 0.89 grams.

b. Dosing - The test material was identified as FMC 343297. (0.4% a.i.)

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It was a pale brown solid. Acetone was used to prepare concentration stock solutions.

c. Design - A static system with 19.6 liter glass test vessels containing 15 liters of test solution and 10 fish each. Temperature: 21-23°C; pH: 7.6; Dissolved Oxygen: 22-100% saturation; The nominal test concentrations were: 15.0, 10, 6.8, 4.6, and 3.2 ppb.

d. Statistics - The computer program utilized estimated LC50 values using the binomial probability method.

12. Reported Results:

The 96-hour LC50 for FMC 33297 was 6.8 ppb. The no mortality level was found to be 4.6 ppb.

13. Reviewers Discussion and Interpretation of the Study:

a. Test Procedures - The following discrepancies are noted:

- The test solutions were reported to be cloudy in the 48, 72, and 96-hour time periods for the 15, 10, 6.8, and 4.6 nominal concentration levels. No explanation was provided for why the test vessels were cloudy. Since suspended particulate matter in the test vessels can effect the availability of the test material to the test organism, the exposure level is in question. Nominal test concentrations were not measured to confirm actual test material concentrations.
- The test material is not adequately identified. The test material FMC 33297 is not stated in the report to be permethrin and the IUPAC name is not provided. It is described to be a pale brown solid.
- Dissolved oxygen decreased substantially towards the end of the test. DO saturation was 100% at test initiation and 22% at the 48 and 96-hour time periods.
- No raw data were provided.
- The source of test organism was not specified.

b. Statistical Analysis - The estimated LC50 values were recalculated using the binomial probability method.

c. Discussion/results - The 96-hour LC50 value of 6.8 ppb indicates that FMC 33297 is very highly toxic to bluegill sunfish.

d. Adequacy of Study

- 1) Classification: Supplemental
- 2) Rationale: Discrepancies listed above.
- 3) Repairability: N/A

14. Completion of One-Liner: Completed 3-4-91

PERMETHRIN

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Pages 4 through 6 are not included.

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